PATENT APPLICATION
ATTORNEY DOCKET NO. 09469.006001

APPLICATION

FOR

UNITED STATES LETTERS PATENT

TITLE: **A SYSTEM AND METHOD FOR PROVIDING INTEGRATION VIA A DIAL-UP INTERFACE**

APPLICANT: **Glen H. MULLEN, Matthew T. NOVI, Shaun E. NEUMANN, Abdullah ZAHUR, and Alexandre J.C. GAULENE**

"EXPRESS MAIL" Mailing Label Number: EV042549371US
Date of Deposit: October 18, 2001

22511
PATENT TRADEMARK OFFICE

A SYSTEM AND METHOD FOR PROVIDING INTEGRATION VIA A DIAL-UP INTERFACE

Background of Invention

[0001] Computers are used to perform a wide assortment of tasks. Often computers are connected together as a group of computers known as a network workgroup. Referring to Figure 1, a network workgroup is made up of a first client (10), a second client (12), a third client (14), and a shared printer (16) each having a network connection (18), for example, an Ethernet connection. Using a router (20), a connection is made to a remote network via a hub (22). Connected to the hub (22) are a remote shared printer (28), a first remote client (24), a second remote client (26), and a file server (30). The entire networked workgroup is able to connect to a wide area network (32), *e.g.*, the Internet, via the router (20). Connecting to the network via remote access is increasing in popularity as users seek to use computers away from the central network workgroup. In such cases, a remote client computer is connected to the central network group via a telephone line and a communication device known as a modem.

[0002] Managing dispersed serial connections and modem pools for large numbers of users creates the need for significant administrative support. Because modem pools are a link to the outside world, modem pools require careful attention to security and authorization. Remote Authentication Dial-In User Service (RADIUS) handles these authentication and configuration issues by managing a single "database" of users. This allows for authentication (verifying user name and password) as well as configuration information detailing the type of service to deliver to the user (*e.g.*, Point-to-Point Protocol (PPP), telnet, or rlogin). PPP is a widely used data link protocol for transmitting Transfer Control Protocol/Internet Protocol (TCP/IP) packets over dial-up telephone connections. Telnet is a

protocol that enables an Internet user to log on to and enter commands on a remote computer linked to the Internet, as if the user were using a text-based terminal directly attached to that computer. Telnet is part of the TCP/IP suite of protocols. Rlogin is a protocol used to log on to a networked computer in which the local system automatically supplies the user's login name.

[0003] In a network workgroup, a Network Access Server (NAS) operates as a client of a server. The NAS provides a service to the dial-in user, such as PPP or Telnet. The client is responsible for passing user information to designated servers, and then acting on the response returned. Servers are responsible for receiving user connection requests, authenticating the user, and then returning all configuration information necessary for the client to deliver service to the user. The server can also act as a proxy client to other servers or other kinds of authentication servers.

[0004] In an effort to maintain network security, transactions between the client and server are authenticated through the use of a secret shared between the client and the server. This secret is never sent over the network. In addition, any user passwords sent between the client and server use a mechanism to maintain data integrity, *e.g.,* MD5 Checksum, to eliminate the possibility that someone snooping on an unsecured network can determine a user password.

[0005] When the server is provided with the user name and original password input by the user, the server authenticates the user name and password through an authentication mechanism. The authentication mechanism is typically one of the following mechanisms: PPP, Extensible Authentication Protocol (EAP), Challenge Handshake Authentication Protocol (CHAP), or UNIX login. New attribute values can be added to the authentication mechanisms without disturbing existing implementations of the RADIUS server protocol.